

REMARKS

In an Office Action mailed September 3, 2009, claims 16-35 of the present application were rejected. Herein, claims 16, 18, 22, 25, 29, and 31-34 have been amended. No new matter has been added. Additionally, claims 17, 19-21, 23, 24, 26, 27, 30, and 35 have been cancelled without prejudice or disclaimer to the subject matter therein. Applicants respectfully request continued examination and reconsideration of the present application.

Claims 16-35 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 16, 18, 22, 25, 28, 29, and 32-34 are pending, and claims 17, 19-21, 23, 24, 26, 27, 30, and 35 have been cancelled. Applicants respectfully submit that the claims have been amended in light of the Examiner's concerns. As such, Applicants respectfully request that the rejection of claims 16, 18, 22, 25, 28, 29, and 32-34 be withdrawn in light of the amendments to the claims.

Claim 35 was rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Applicants note that claim 35 has been cancelled; accordingly, Applicants respectfully submit that the rejection of claim 35 under 35 U.S.C. 101 is rendered moot in light of the cancellation of claim 35.

Claims 16-18, 23, 26, 29, and 32-35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. (U.S. Patent Application No. 2003/0061423, hereafter "Rankin") in view of Kling et al. (U.S. Patent No. 6,662,203, hereafter "Kling"). Claims 16, 18, 29, and 32-34 are pending, and claims 17, 23, 26, 30, and 35 has been cancelled. Applicants respectfully request reconsideration of the rejection based on the following remarks.

Initially, Applicants note that the subject matter of original claim 21 has been incorporated into independent claims 16, 33, and 34. Claim 21 was rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin in view of Kling, and in further view of Takeuchi et al. (U.S. Patent No. 5,944,778, hereafter "Takeuchi"). Accordingly, in order to expedite

prosecution, Applicants respectfully submit that claims 16, 33, and 34, as well as those depending therefrom, are patentable over any combination of Rankin, Kling, and Takeuchi based on the following remarks.

Claim 16 recites, in part, that a plurality of tasks include a signal-handler processing task which is assigned a variable priority, the signal-handler processing task includes a queue in which at least one signal handler to be executed is registered, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed. Applicants respectfully submit that this feature of claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Rankin discloses a task priority register (“TPR”) table 202 comprising storage elements 210 including a physical identifier field 212, a logical identifier field 214, a task priority field 216, and an enable field 218 (Fig. 2 and Paragraphs [0026]-[0027]). The physical identifier provides an identifier for physically addressing a processor associated with the TPR table, the logical identifier provides an identifier for logically addressing the processor associated with the TPR table, the task priority value provides an indication of a priority level associated with a task being processing by the processor associated with the TPR table, and the enable field provides an indication as to whether the processor associated with the TPR table is enabled for servicing interrupts. In other words, Rankin merely discloses **a set of storage elements** making up a task priority register table that is used **to store information relating to one or more tasks**.

Contrast the above disclosure of Rankin to the feature recited in claim 16 in which a signal-handler processing **task** is assigned a variable priority, includes a queue in which at least one signal handler to be executed is registered, and **the signal-handler processing task causes to be executed a signal handler** having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed.

In view of the above, Applicants respectfully submit that Rankin fails to disclose or suggest the signal-handler processing task as recited by claim 16. As a result, Kling and

Takeuchi must disclose or suggest the signal-handler processing task as recited by claim 16 in order to render this feature of claim 16 obvious. Applicants respectfully submit that Kling and Takeuchi fail to disclose or suggest the signal-handler processing task as recited by claim 16. Therefore, Applicants respectfully submit that the signal-handler processing task as recited by claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Additionally claim 16 recites, in part, a signal notifying section for specifying a signal handler designated by a generated signal as an object signal handler and assigning a priority to the object signal handler by referring to contents registered by the signal-handler registering section, and registering the object signal handler in the queue. Applicants respectfully submit that this feature of claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Applicants note that the signal notifying section as recited by claim 16 registers an object signal handler in the queue of the signal-handler processing task. As noted above, the signal-handler processing task as recited by claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi. Accordingly, Applicants respectfully submit that the signal notifying section as recited by claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Additionally claim 16 recites, in part, a priority changing section for specifying a signal handler having a highest priority out of at least one signal handler registered in the queue by referring to contents registered by a signal-handler registering section when content registered in the queue has been changed, and changing a variable priority of the signal-handler processing task recorded in a priority table to a priority of the specified highest priority signal handler. Applicants respectfully submit that this feature of claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Applicants note that the priority changing section as recited by claim 16 specifies a signal handler having a highest priority out of the signal handlers registered in the queue of the signal-handler processing task, and changes the variable priority of the signal-handler processing task.

As noted above, the signal-handler processing task as recited by claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi. Accordingly, Applicants respectfully submit that the priority changing section as recited by claim 16 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

In view of the above, Applicants respectfully submit that claim 16 is patentable over any combination of Rankin, Kling, and Takeuchi.

Further, claims 18 and 32 are patentable over any combination of Rankin, Kling, and Takeuchi based at least on their dependency from claim 16.

Regarding claim 33, Applicants note that claim 33 has been amended similarly to claim 16, and that claim 33 recites, in part, the following: that a plurality of tasks include a signal-handler processing task which is assigned a variable priority, the signal-handler processing task includes a queue in which at least one signal handler to be executed is registered, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed; a signal notifying step for specifying a signal handler designated by a generated signal as an object signal handler and assigning a priority to a object signal handler by referring to contents registered by a signal-handler registering section, and registering the object signal handler in the queue; and a priority changing step for specifying a signal handler having a highest priority out of at least one signal handler registered in the queue by referring to contents registered by a signal-handler registering section when content registered in the queue has been changed, and changing a variable priority of the signal-handler processing task recoded in a priority table to a priority of a specified highest priority signal handler. Therefore, for at least reasons similar to those discussed above with respect to claim 16, Applicants respectfully submit that claim 33 is patentable over any combination of Rankin, Kling, and Takeuchi.

Regarding claim 34, Applicants note that claim 34 has been amended similarly to claim 16, and that claim 34 recites, in part, the following: that a plurality of tasks include a signal-handler processing task which is assigned a variable priority, the signal-handler processing task

includes a queue in which at least one signal handler to be executed is registered, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed; a signal notifying section for specifying a signal handler designated by a generated signal as an object signal handler and assigning a priority to the object signal handler by referring to contents registered by the signal-handler registering section, and registering the object signal handler in the queue; and a priority changing section for specifying a signal handler having a highest priority out of at least one one signal handler registered in the queue by referring to contents registered by a signal-handler registering section when content registered in the queue has been changed, and changing a variable priority of the signal-handler processing task recorded in a priority table to a priority of the specified highest priority signal handler. Therefore, for at least reasons similar to those discussed above with respect to claim 16, Applicants respectfully submit that claim 34 is patentable over any combination of Rankin, Kling, and Takeuchi.

Additionally, Applicants note that, although the heading of the rejection of claim 29 indicates that claim 29 was rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin in view of Kling, the body of the rejection of claim 29 includes the use of Takeuchi as a reference. Accordingly, in order to expedite prosecution, Applicants respectfully submit that claim 29 is patentable over any combination of Rankin, Kling, and Takeuchi based on the following remarks.

Claim 29 recites, in part, a buffer for temporarily storing data outputted from a specific task. Applicants respectfully submit that this feature of claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Applicants respectfully submit that Rankin and Takeuchi fail to disclose or suggest a buffer for temporarily storing data outputted from a specific task. Therefore, Kling must disclose or suggest the above feature of claim 29 in order for any combination of Rankin, Kling, and Takeuchi to render it obvious. Applicants respectfully submit that Kling fails to disclose or suggest a buffer for temporarily storing data outputted from a specific task.

Kling discloses a processing core having a job queue in which job signals are buffered in a number of storage positions for storing the job signals (Col. 6, Lines 15-23). The job signals are scheduled by job scheduler to **execute corresponding jobs** (Col.3, Lines 26-28). In other words, the job queue merely buffers instructions to execute a job when called.

Contrast the above disclosure of Kling to the feature of claim 29 in which a buffer temporarily **stores data outputted from a specific task**. Therefore, Applicants respectfully submit that Kling does not disclose or suggest a buffer for temporarily storing data outputted from a specific task.

In view of the foregoing, Applicants respectfully submit that a buffer for temporarily storing data outputted from a specific task is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Additionally, claim 29 recites, in part, a buffer administering section for notifying a signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount. Applicants respectfully submit that this feature of claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Applicants respectfully submit that Rankin and Takeuchi fail to disclose or suggest a buffer administering section for notifying a signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount. Therefore, Kling must disclose or suggest the above feature of claim 29 in order for any combination of Rankin, Kling, and Takeuchi to render it obvious. Applicants respectfully submit that Kling fails to disclose or suggest a buffer administering section for notifying a signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount.

As noted above, Kling discloses a processing core having a job queue in which job signals are buffered in a number of storage positions for storing the job signals (Col. 6, Lines 15-23). Job signals corresponding to jobs that have been committed are removed from the job

queue, thereby allowing new job signals from the job scheduler to be buffered in the job queue (Col.7, Lines 61-65). In other words, Kling merely discloses processed job signals are removed from the job queue.

Contrast the above disclosure of Kling to the feature of claim 29 in which a buffer administering section notifies a signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount. Therefore, Applicants respectfully submit that Kling fails to disclose or suggest a buffer administering section as recited by claim 29.

In view of the foregoing, Applicants respectfully submit that the buffer administering section as recited by claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Further, claim 29 recites, in part, a specific signal handler for causing a task registering section to change a priority of the specific task registered in a priority table to a higher value by giving an instruction to the task registering section. Applicants respectfully submit that this feature of claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Applicants respectfully submit that Rankin and Takeuchi fail to disclose or suggest a specific signal handler for causing a task registering section to change a priority of the specific task registered in a priority table to a higher value by giving an instruction to the task registering section. Therefore, Kling must disclose or suggest the above feature of claim 29 in order for any combination of Rankin, Kling, and Takeuchi to render it obvious. Applicants respectfully submit that Kling fails to disclose or suggest that the specific task includes a specific signal handler for causing a task registering section to change a priority of the specific task registered in a priority table to a higher value by giving an instruction to the task registering section.

As noted above, Kling discloses a processing core having a job queue in which job signals are buffered in a number of storage positions for storing the job signals (Col. 6, Lines 15-

23). Additionally, the processing core has a plurality of execution pipelines each having circuitry for fetching instructions from a program store, decoding the instructions, executing the instructions, and performing memory write back (Col.6, Lines 15-16 and Lines 66-67, and Col. 7, Lines 1-2). In other words, Kling merely discloses basic pipeline circuitry.

Contrast the above disclosure of Kling to the feature of claim 29 in which a specific signal handler causes a task registering section to change a priority of the specific task registered in a priority table to a higher value by giving an instruction to the task registering section. Therefore, Applicants respectfully submit that Kling does not disclose or suggest the specific signal handler as recited in claim 29.

In view of the foregoing, Applicants respectfully submit that the specific signal handler as recited by claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

Still further, claim 29 recites, in part, that the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification from the buffer administering section. Applicants respectfully submit that this feature of claim 29 is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

As noted above, Rankin discloses a TPR table comprising storage elements including a task priority field that provides an indication of a priority level associated with a task being processed by the processor associated with the TPR table, and an enable field that provides an indication as to whether the processor associated with the TPR table is enabled for servicing interrupts (Fig. 2 and Paragraphs [0026]-[0027]). In other words, Rankin merely discloses a set of storage elements making up a task priority register table that is used to store information relating to one or more tasks.

Contrast the above disclosure of Rankin to the feature of claim 29 in which the signal generating section **generates a signal** corresponding to the specific signal handler **upon receiving the notification** from the buffer administering section.

In view of the above, Applicants respectfully submit that Rankin fails to disclose or suggest that the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification from the buffer administering section. As a result, Kling or Takeuchi must disclose or suggest that the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification from the buffer administering section in order to render this feature of claim 29 obvious. Applicants respectfully submit that Kling and Takeuchi fail to disclose or suggest the above feature of claim 29.

Therefore, Applicants respectfully submit that the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification from the buffer administering section is not disclosed or suggested by any combination of Rankin, Kling, and Takeuchi.

In view of the foregoing, Applicants respectfully submit that claim 29 is patentable over any combination of Rankin, Kling, and Takeuchi.

Claims 19-22, 24, 25, 27, 28, 30, and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin in view of Kling, and in further view of Takeuchi. Claims 22, 25, 28, and 31 are pending, and claims 19-21, 24, 27, and 30 have been cancelled. Applicants respectfully request reconsideration of the rejection based on the following remarks.

Applicants note that claims 22, 25, 28, and 31 depend from claim 16. As discussed above, Applicants respectfully submit that claim 16 is patentable over any combination of Rankin, Kling, and Takeuchi. Accordingly, Applicants respectfully submit that claims 22, 25, 28, and 31 are patentable over any combination of Rankin, Kling, and Takeuchi based at least on their dependency from claim 16.

Therefore, for at least the reasons presented above, Applicants respectfully submit that independent claims 16, 29, 33, and 34, as well as the claims depending therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, Applicants respectfully request that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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